

REMARKS

Claim Status

By this amendment, claims 1, 7, 20, 24, 39, 40, 43, 46, 49, 51-54, 56, 61 and 64 are amended. Claims 2, 19, 23, 55, 57, 59 and 65 are cancelled. Claims 68-77 have been added. Claims 1, 3-18, 20-22, 24, 25-54, 56, 58, 60-64, 66-77 are currently pending.

Telephone Interview

A telephone interview was conducted between Applicant's attorney, Ken Smith, and Examiner David Turocy on February 26, 2007. The 35 USC § 112 written description rejections were discussed. Applicant's attorney argued that the range, "less than 20 and greater than 35 feet per minute," is supported by paragraphs 101-110 and 113-122. Examiner Turocy asked Mr. Smith to present the argument in the response to the Office Action. Applicant's attorney argued that the application specification and drawings support decorative tapered edges, grooves, bevels, and stepped surfaces. No agreement was reached.

The rejection of claim 1 in view of the Hasenour and Nielsen references was also discussed. Applicant's attorney explained that the Hasenour and Nielsen references could not be combined to meet claim 1, since claim 1 included features that were not disclosed or suggested by Nielsen or Hasenour. For example, Neither Nielsen nor Hasenour disclose applying a coating that is 0.0015 inches thick or less while the three-dimensional substrate is moving less than twenty feet per minute and greater than thirty-five feet per minute. Applicant also explained that Hasenour teaches away from this claim element, since Hasenour states that the coating would be too thick if the substrate were moved in the claimed speed range. No agreement was reached.

Claim Rejections - 35 USC § 112

Written Description - moving 20>35 fpm

The Office Action states that there is not support for the range of twenty-five and thirty-five feet per minute. Applicant respectfully points out that the claimed range is less than twenty and greater than thirty-five feet per minute.

Paragraphs 101-110 describe a first embodiment of the process. Paragraph 107 describes

that the belt moves at 20-85 feet per minute in this embodiment.

Paragraphs 113-122 describe an alternate version of the process of paragraphs 101-110. Paragraph 121 of the alternate process teaches that the speed should be less than 35 feet per minute (at 35 fpm the flow to the panel edges and corners is not as likely). Paragraphs 107 and 121 thus teach the claimed range of greater than twenty and less than thirty-five feet per minute.

Written Description - Tapered Edge Surface, Groove Surface, Bevel Surface, Step Surface

The Office Action asserted that there is not support for a substrate having “an intentionally formed decorative surface that includes at least one surface selected from the group consisting of a tapered edge surface, a groove surface, a bevel surface, and a stepped surface.” Applicant has removed this recitation of a substrate by this amendment without prejudice or disclaimer.

By this amendment, the claims recite a three dimensional substrate having contoured leading and trailing edges. Support for this amendment was incorporated into paragraph [0088] of the specification from U.S. Patent Number 6,746,535, which was incorporated by reference in the present application as originally filed. No new matter has been added.

Claim Rejections - 35 USC § 103

Atomizing with Pressurized Air

Claim 1 has been amended to include the features of claim 23. The Office Action rejected claim 23 as being unpatentable over Nielsen in view of Hasenour et al. or vice versa and further in view of Hynds. Amended claim 1 recites atomizing a 100 percent solids coating material with a pressurized stream of *air*. As the Office Action points out, Nielsen and Hasenour fail to disclose atomizing a 100 percent solids coating with *air*. See Office Action, p.13, item 10. The Office Action asserts that it would be obvious to modify Nielsen in view of Hasenour et al. or vice versa to use air as taught by Hynds. However, Nielsen clearly teaches away from using pressurized *air* to atomize the coating and using pressurized *air* would render Nielsen unsuitable for its intended purpose. See MPEP 2145 The Nielsen patent teaches that *air* causes undesirable air bubbles to form in the coating. The Nielsen patent teaches away from using *air*, which would

cause air bubbles to form, and instead teaches that gasses other than *air* that are soluble in the coating should be used instead, such that gas bubbles that may become entrapped in the coating are removed after application by the gasses dissolving into the coating and diffusing to the surface. See Nielsen Patent Abstract Indeed, using *air* to atomize the coating in Nielsen would render the methods of Nielsen unsuitable for their intended purpose of eliminating bubbles in the coating. The entire disclosure of Nielsen is directed to using gasses other than *air* to atomize the coating to avoid air bubbles. Clearly one having skill in the art would not modify Nielsen to use *air* to atomize the coating, when Nielsen teaches that the opposite should be done to avoid air bubbles in the coating.

Moving at 20>35 fpm to Provide 0.0015 Inches Thick or Less Coating

The Office Action asserts that it is improper for Applicant to argue against Nielsen and Hasenour individually, wherein the teachings of the references are taken collectively. Applicant respectfully points out that the collective teachings of the references cannot be combined to establish prima facie obviousness when the claim includes a feature that is not shown or suggested by any of the references. MPEP 2142 Pointing out that each of the references do not teach a particular claim element establishes that the collective teachings could not possibly establish prima facie obviousness.

Amended claim 1 recites that a coating material comprised of 100 percent solids material is applied to the three-dimensional substrate while the three-dimensional substrate is moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a uniform thin film coating that is 0.0015 inches thick or less. None of the applied references disclose or suggest this claim element. As such, the collective teachings of the references could not possibly establish prima facie obviousness.

In addition to not disclosing this claim element, Hasenour et al. teaches away from applying a coating material to a substrate while the substrate is moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute. Hasenour et al. teaches that moving an article through a spray chamber at slower speeds of thirty-five feet per minute or less causes an undesirable “plastic” look. Hasenour et al., col. 6, ll. 44-53. This teaching of Hasenour et al. would clearly lead one of ordinary skill in the art away from applying a coating material to

a substrate while the substrate is moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute.

As the Office Action points out, Nielsen fails to disclose moving the substrate at thirty-five ft/min. In fact, Nielsen does not disclose any speed. Clearly Nielsen does not teach applying a 100 percent solids material is to a three-dimensional substrate while the three-dimensional substrate is moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a uniform thin film coating that is 0.0015 inches thick or less.

Claims 3-6 and 8 depend from claim 1 and are allowable for at least the reasons claim 1 is allowable.

Amended claim 9 depends from claim 1 and further recites that a stream of the *coating atomized with air* has a temperature that is controlled to be between 80 degrees Fahrenheit and 160 degrees Fahrenheit. None of the references disclose or suggest this feature. Applicant points out that column 19, lines 45-57 of Nielsen discloses coating *atomized with carbon dioxide*, not air, heated to 140 degrees Fahrenheit. Claim 9 is in condition for allowance.

Amended claim 10 depends from claim 1 and further recites that a stream of the *coating atomized with air* has a temperature that is controlled to be between 110 degrees Fahrenheit and 140 degrees Fahrenheit. None of the references disclose or suggest this feature. Claim 9 is in condition for allowance.

Claims 11-18, and 20 depend from claim 1 and are allowable for at least the reasons claim 1 is allowable.

Heating Coating Material *Before* the Coating Material is Atomized

Amended claim 20 recites that heat is added to the coating material before the coating material is pressurized with air. Claim 21 depends from claim 20 and further recites that the coating material is heated to between 80 degrees Fahrenheit and 110 degrees Fahrenheit *before* the coating material is atomized with the pressurized air. This feature is not disclosed or suggested by the applied references. Applicant respectfully points out that column 19, lines 46-

50 of Nielsen discloses that the coating material is heated to 140 degrees Fahrenheit (60 degrees Celsius) *after* the coating is mixed with carbon dioxide and pressurized. In addition, the Hynds reference teaches away from heating the coating material before atomization. Specifically, Hynds discloses “thermally insulating the hot air from the coating material to prevent polymerization of the coating material...” Hinds, col. 2, line 66 to col. 3, line 4. Claim 20 is in condition for allowance.

Claim 22 depends from claim 20 and recites that the coating is heated to between 110 degrees Fahrenheit and 140 degrees Fahrenheit before the coating material is atomized with pressurized air. Claim 22 is in condition for allowance.

Claim 24 depends from claim 1 and is in condition for allowance for at least the reasons claim 1 is in condition for allowance.

Claim 24 further recites heating the pressurized stream of air. Claim 25 depends from claim 24 and further recites that the pressurized *air* stream is heated to between 80 degrees Fahrenheit and 160 degrees Fahrenheit. Applicant respectfully points out that in Nielsen, a soluble gasses, not air, are heated. Hynds discloses heating air to a temperature range between 200 degrees Fahrenheit and 350 degrees Fahrenheit. Claim 25 is in condition for allowance.

Claims 26-30 depend from claim 1 and are allowable for at least the reasons claim 1 is allowable.

Claim 31 depends from claim 1 and further recites that a discharge stream temperature of the coating atomized in air is maintained between 80 degrees and 160 degrees Fahrenheit. The references do not disclose or suggest this feature. In Nielsen, the coating is pressurized with gasses other than air. In Hynds, the coating is heated to higher temperatures. Claim 31 is in condition for allowance.

Claims 32-39 depend from claim 1 and are allowable for at least the reasons claim 1 is allowable.

Independent Claim 41

Amended claim 40 is patentable over the applied reference, because amended claim 40 includes features that are not disclosed or suggested by the applied references. For example, amended claim 40 recites controlling a temperature of a stream of coating material atomized with *air* to be between about 80 degrees Fahrenheit and about 160 degrees Fahrenheit. This claim limitation is not disclosed or suggested by the applied references. As explained above, in Nielsen, coating that is pressurized with gasses other than air is heated. Nielsen teaches away from atomizing coating material with air to prevent bubbles from forming. In Hynds, coating is heated to temperatures that are substantially higher than the temperature range recited in amended claim 40. Claim 40 is in condition for allowance.

Claims 41-43 and 45 depend from claim 40 and are allowable for at least the reasons that claim 40 is allowable.

Independent Claim 46

Wet Film Thickness = Dry Film Thickness and Less than 1.5 Mils

Amended claim 46 is patentable over the applied references, because amended claim 46 includes features that are not disclosed or suggested by any of the applied references. For example, claim 46 recites applying a coating on a three-dimensional substrate having a wet build and a dry build that are substantially the same and are less than 0.0015 inches thick. In each and every example described by Nielsen, the wet build coating thickness (the thickness of the coating when the coating is wet) is substantially thicker than the dry build coating thickness (the thickness of the coating once the coating has dried). The Office Action refers to the example at column 26, lines 60-65 Nielsen to support its assertion that the wet film and dry film are substantially equal in thickness. Applicant respectfully points out that this example in Nielsen does not meet the claim limitation “a wet build and a dry build that are substantially the same and are less than 0.0015 inches thick” for at least two reasons. First, the wet build thickness (2.2 mils) and the dry film thickness (1.8 mils) are not substantially the same. In this example, the wet film thickness is over twenty percent thicker than the dry film thickness. Second, neither the wet film thickness nor the dry film thickness are less than 1.5 mills as recited by claim 46. Hasenour also does not disclose or suggest a wet build or a dry build thickness of a coating that

is 0.0015 inches thick or less applied to a three-dimensional substrate. Claim 46 is in condition for allowance.

Additional Features

Additional features discussed above are also recited by claim 46 and are not disclosed or suggested by the applied references. For example, claim 46 also recites that the coating is atomized with air, and that the coating is applied at a thickness of 1.5 mils or less while the three-dimensional substrate is moving faster than 20 feet per minute and slower than 35 feet per minute. Claim 46 is in condition for allowance.

Claims 47 and 48 depend from claim 46 and are allowable for at least the reasons that claim 46 is allowable.

Independent Claim 49

Amended claim 49 is patentable over the applied references, because independent claim 49 includes features that are not disclosed or suggested by the applied references. Examples of features of claim 49 that are not disclosed or suggested by the applied references include:

- atomizing a 100 percent solids coating material within one or more spray guns with air;
- controlling the temperature of dispensed coating material that is atomized with air such that it is between about 80 degrees Fahrenheit and about 160 degrees Fahrenheit.

Claim 49 is in condition for allowance.

Claim 50 depends from claim 49 and is allowable for at least the reasons that claim 49 is allowable.

Independent Claim 51

Amended claim 51 is patentable over the applied references, because independent claim 51 includes features that are not disclosed or suggested by the applied references. Examples of features of claim 51 that are not disclosed or suggested by the applied references include:

- heating coating material to a temperature that is between 80 degrees Fahrenheit and 160 degrees Fahrenheit *before* the coating is atomized with air;
- applying a wet build of coating that is less than 0.0015 inches thick to a three-dimensional substrate that is moving between 20 and thirty-five feet per minute;
- a wet coating build and a dry coating build on a three-dimensional substrate that are the same thickness that is less than 0.0015 inches.

Independent claim 52

Amended claim 52 is patentable over the applied references, because independent claim 52 includes features that are not disclosed or suggested by the applied references. Examples of features of claim 52 that are not disclosed or suggested by the applied references include:

- heating a substantially solvent free coating material to a temperature that is between 80 degrees Fahrenheit and 160 degrees Fahrenheit *before* the coating material is atomized;
- atomizing substantially solvent free coating material that is preheated to between 80 degrees Fahrenheit and 160 degrees Fahrenheit with *air*;
- applying the substantially solvent free coating material to a wood three-dimensional substrate while the three-dimensional substrate is moved at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a uniform thin film coating that is 0.0015 inches thick or less.

Independent claim 53

Amended claim 53 is patentable over the applied references, because independent claim 53 includes features that are not disclosed or suggested by the applied references. Examples of features of claim 53 that are not disclosed or suggested by the applied references include:

- atomizing 100 percent solids coating material with air that is heated to form a stream of atomized coating material having a temperature between 110 degrees Fahrenheit and 140 degrees Fahrenheit;
- applying 100 percent solids coating to a three-dimensional substrate that is moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a uniform thin film coating that is 0.0015 inches thick or less

Independent claim 54

Amended claim 54 is patentable over the applied references, because independent claim 54 includes features that are not disclosed or suggested by the applied references. Examples of features of claim 54 that are not disclosed or suggested by the applied references include:

- heating the coating material to a temperature that is between 80 degrees Fahrenheit and 160 degrees Fahrenheit *before* the coating is atomized with air;
- atomizing the preheated coating material with air to form a stream of atomized coating material;
- controlling a temperature of the stream of coating material that is atomized with air to be between about 80 degrees Fahrenheit and about 160 degrees Fahrenheit ;
- applying the coating material to a three-dimensional substrate moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a uniform wet build of said coating material on said three-dimensional substrate that is less than 0.0015 inches thick;
- a wet build of coating material and a dry build of coating material on a three-dimensional substrate are substantially the same thickness that is 0.0015 inches or less thick.

Claim 54 is in condition for allowance.

Independent Claim 56

Amended claim 56 is patentable over the applied references, because independent claim 56 includes features that are not disclosed or suggested by the applied references. Examples of features of claim 56 that are not disclosed or suggested by the applied references include:

- atomizing a 100 percent solids coating material that is supplied at a temperature between 110 degrees Fahrenheit and 140 degrees Fahrenheit with air;
- applying the 100 percent solids coating material to a wood three-dimensional substrate moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a uniform thin film coating that is 0.0015 inches thick or less.

Amended claim 56 is in condition for allowance.

Claims 58 and 60 depend from claim 56 and are also in condition for allowance.

Independent Claim 61

Amended claim 61 is patentable over the applied references, because independent claim 61 includes features that are not disclosed or suggested by the applied references. Examples of features of claim 61 that are not disclosed or suggested by the applied references include:

- atomizing a coating material comprised of 100 percent solids material that is *supplied at* a temperature that is between 80 degrees Fahrenheit and 160 degrees Fahrenheit with air that is heated to produce a stream of atomized 100 percent solids material having a temperature between 110 degrees and 140 degrees Fahrenheit;
- applying the coating material to a three-dimensional wood substrate moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a thin film coating having a film thickness of 0.0015 inches or less of said coating material.

Claims 62 and 63 depend from claim 61 and are also in condition for allowance.

Independent Claim 64

Amended claim 64 is patentable over the applied references, because independent claim 64 includes features that are not disclosed or suggested by the applied references. Examples of features of claim 64 that are not disclosed or suggested by the applied references include:

- atomizing a coating material comprised of 100 percent solids material that is *supplied at* a temperature that is between 110 degrees Fahrenheit and 140 degrees Fahrenheit with *air* that is heated to produce a stream of atomized 100 percent solids material having a temperature between 110 degrees and 140 degrees Fahrenheit;
- applying the coating material to a three-dimensional wood substrate moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a thin film coating having a film thickness of 0.0015 inches or less of said coating material.

New Claims

New claim 77 is patentable over the references because new claim 77 includes a combination for features that is not shown or suggested by the applied references. The applied references do not disclose or suggest a process for coating a three-dimensional substrate where 100 percent solids coating is preheated to a temperature between 80 degrees Fahrenheit and 160 degrees Fahrenheit, air that atomizes coating is heated to a temperature between 80 degrees Fahrenheit and 160 degrees Fahrenheit, and the three-dimensional substrate is heated to a temperature between 80 degrees Fahrenheit and 160 degrees. Claim 77 is in condition for allowance.

New claims 68-76 depend from the pending independent claims. New claims 68-76 further define the three-dimensional substrate as a door having an inside profile which forms recessed areas with leading and trailing edges that extend transverse to a direction of movement of the substrate as the substrate is being coated. New claims 68-76 are allowable at least by virtue of their dependence on an allowable independent claim.

Applicants respectfully submit that all pending claims now allowable.

Respectively submitted,

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